

横断山地区果蝇三新种

(双翅目: 果蝇科)

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果蝇属果蝇亚属 *Drosophila* (*Drosophila*) 的 *melanderi* 种组由 Wheeler 1949 年建立, 共包括 4 个种, 1 个美洲种 *D. (D.) ordinaria* Coquillett; 1 个欧洲种 *D. (D.) cameraria* Hadiday 及 2 个东洋区种 *D. (D.) makinoi* Okada^[1], *D. (D.) neomakinoi* Gupta et Singh^[2]。其特征为: 抱器 2 个, 即初抱器及次抱器。肛板下缘有程度不同的鬃齿饰变。下生殖板内骨其宽与长相比更宽。前阳基侧突与下生殖板完全不相连。本文记述 *melanderi* 种组 3 新种, 其标本均采于云南省横断山地区的德钦县, 且显示同域分布, 提示该地区可能为 *melanderi* 种组的起源地。模式标本存于中国科学院昆明动物研究所。

叉茎果蝇 *Drosophila* (*Drosophila*) *furcapenis* 新种(图 1: A—H)

♂: 体长 3.0mm, 翅长 3.5mm。

头部: 复眼红色, 被密集的微毛。触角第二节黄色, 具 2 根长刚毛及散生的小毛。第三节灰黄色。触角芒背侧 4 分枝毛, 腹侧 1 分枝毛, 内侧具小刚毛。端叉小, 下颏须黄白色, 端部及亚端外侧各具 1 刚毛, 表面具散生的小毛。单眼三角区浅黄色, 三单眼内侧棕色, 单眼鬃长且外倾, 具几对小刚毛。额暗黄色, 前方色更浅, 具额毛。眶区浅黄色。额为头宽的 1/2。口上片暗黄色。颜浅黄色。鼻瘤低。颊浅黄色, 颊高为复眼最大直径的 1/5。orb₁ 与 vt₁ 相比更靠近 orb₃。orb₂/orb₁ = 0.3, orb₃/orb₁ = 0.8。髭粗长, 其余口缘鬃细短, or₂/or₁ = 0.4。喙黄白色。

胸部: 背板及小盾片黄色, 侧板暗黄色。肩鬃 2, 上面一根更长。ac 6 列。前背中鬃/后背中鬃 = 0.64, 前背中鬃与后背中鬃间的距离为两前背中鬃间距离的 1/2。小盾片前鬃外伸或平行, 后鬃内伸且交叉。SI = 0.87。足: 黄色。中足具胫节端鬃, 前中后三对足的胫节均具亚端鬃。基跗节长为以后三跗节长之和。翅: 透明, 后横脉稍烟色。C₁-鬃 2, 几乎等长。R₄₊₅ 与 M 平行。C = 3.2, 4C = 0.63, 4V = 1.23, Ac = 2.5, 5X = 1.42, C3F = 0.46。平衡棒灰白色。

腹部: 背板棕色。

围阳体(图 1: A—D, G, H): 棕色, 生殖弓上部宽, 具约 10 根鬃, 下部窄似指状, 浅色, 具约 30 根长鬃。肛板上部窄, 下部宽, 被微毛及鬃毛; 靠生殖弓的一侧及下缘具向内反折的窄带, 肛板内缘中央凹, 下缘具几根长鬃, 下侧缘(图 1: D) 鬃毛短。抱器二, 即初抱器

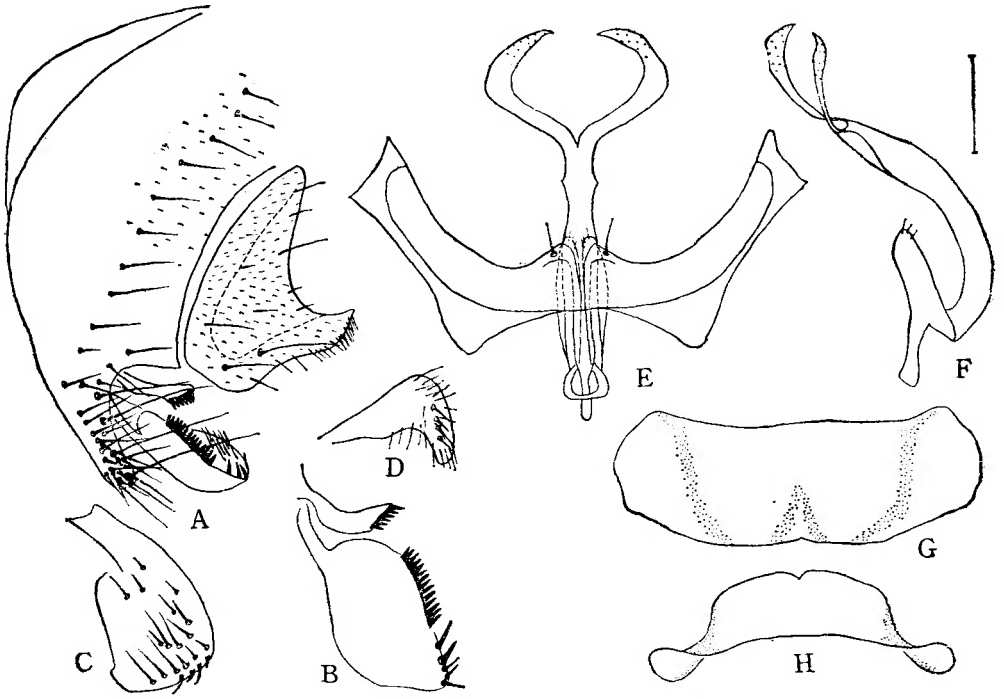


图1 叉茎果蝇 *Drosophila (Drosophila) furcapenis* sp. nov.

A. 围阳体; B. 抱器(正面观); C. 次抱器(腹面观); D. 肛板下侧缘; E. 阳体(正面观); F. 阳茎及前阳基侧突(侧面观); G. 第十腹板(背面观); H. 第十腹板(侧面观)。(比例=0.1mm)

及次抱器(图1: B): 棕色, 初抱器窄长, 端具约6齿; 次抱器大, 上至亚中缘具约13—14齿组成的齿列, 亚中至端部具不规则排列的长齿, 抱器内侧(图1: C)具方向向上的长鬃毛。第十腹板(图1: G, H)中间凸出, 正中下方稍凹。阳体(图1: E, F): 阳茎黄色, 腹向弯曲, 端部二分叉, 叉内弯, 透明, 具小棘刺。前阳基侧突基部与阳茎相连, 端具约3感觉毛。后阳基侧突缺。阳基内骨短小。下生殖板具亚中刺一对, 下生殖板内骨更宽, 约为长的两倍。

正模标本♂, 云南, 德钦阿东山, 1987. VII.8, 梁醒财采。

鉴别特征: 该种似分布于印度的 *D. (D.) neomakinoi*, 背黄色, 无条纹, 但阳茎端为二分叉, 肛板及抱器的形状均不同 腹部背板黑色横带中央并不断开。

拟叉茎果蝇 *Drosophila (Drosophila) furcapenisoides* 新种(图2: A—L)

♂, ♀. 体长约3.5mm, 翅长约3.5—4.0mm。

头部: 复眼红色, 被密集的微毛。触角第二节棕色, 具2根长刚毛及散生的小毛; 第三节色更浅。触角芒背侧4—5分枝毛, 腹侧1或无分枝毛, 端叉小。下颏须黄色, 端部及亚端外侧具二刚毛, 具散生的小毛。单眼三角区暗黄色, 具小刚毛, 三单眼内侧棕色, 单眼鬃长。额区红棕色, 具额毛。眶区暗黄色。额为头宽的1/2。口上片浅棕色。颜黄色。鼻瘤高, 上窄下宽, 不达前缘。颊黄色, 颊高为复眼最大直径的1/5—1/4。喙黄白色。后头棕色。orb₂近orb₃且在orb₂的外侧着生。orb₂/orb₁ = 0.36—0.5, orb₃/orb₁ = 0.6—

0.8。髯粗长,其余口缘髯细弱, $or_2/or_1 = 0.4-0.5$ 。

胸部: 背板黄色,中央具一棕色纵条纹,不达前缘,亚端稍加宽。小盾片黄色,后胸背板中央棕色。侧板棕色。肩髯 2, 上面一根更长, ac 6 列。前背中髯/后背中髯 = 0.5—0.7, 前背中髯与后背中髯间的距离为两前背中髯间距离的 0.37—0.5。小盾片前髯内伸, 后髯内伸且交叉。SI = 0.68—0.88。足: 棕黄色,末端 2 跗节棕色。中足胫节具端髯,前中后三对足的胫节均具亚端髯。基跗节长为以后三个跗节长之和。翅: 稍云状,翅脉棕色,后横脉云状。C₁-髯 2, 几乎等长。R₄₊₅ 与 M 平行。C = 3.2—3.5, 4C = 0.61—0.68, 4V = 1.34—1.41, Ac = 2.33—3.0, 5X = 1.12—1.23, C3F = 0.5—0.59。平衡棒乳白色。

腹部: 背板与腹板棕色,节间膜灰白色。

围阳体(图 2: A—E, I, J): 生殖弓上部宽,棕色,具约 10 根长髯;下部窄,指状,浅棕色,具约 25 根长髯,约 5 根特别长。肛板形状似前一种,但下缘一髯特别长,下侧缘(图 2: D, E) 齿长且密。具二抱器(图 2: B), 初抱器齿密,占全长,约 10 齿;次抱器大,齿密且占全长,约 16 齿;抱器内侧(图 2: C) 具方向向上的髯,上部髯长,下部髯短。第十腹板(图 2: I, J) 棕色,比前一种稍窄,前方两侧具透明的小区域,中央下凹,仅上部相连,中央两侧凸起,两侧缘稍向上翘。阳体(图 2: F—H): 阴茎黄色,腹向弯曲,端部二分叉,又稍内弯,又内侧具锯齿。前阳基侧突与阴茎相连,具约 5 根感觉毛。后阳基侧突缺。阳基内

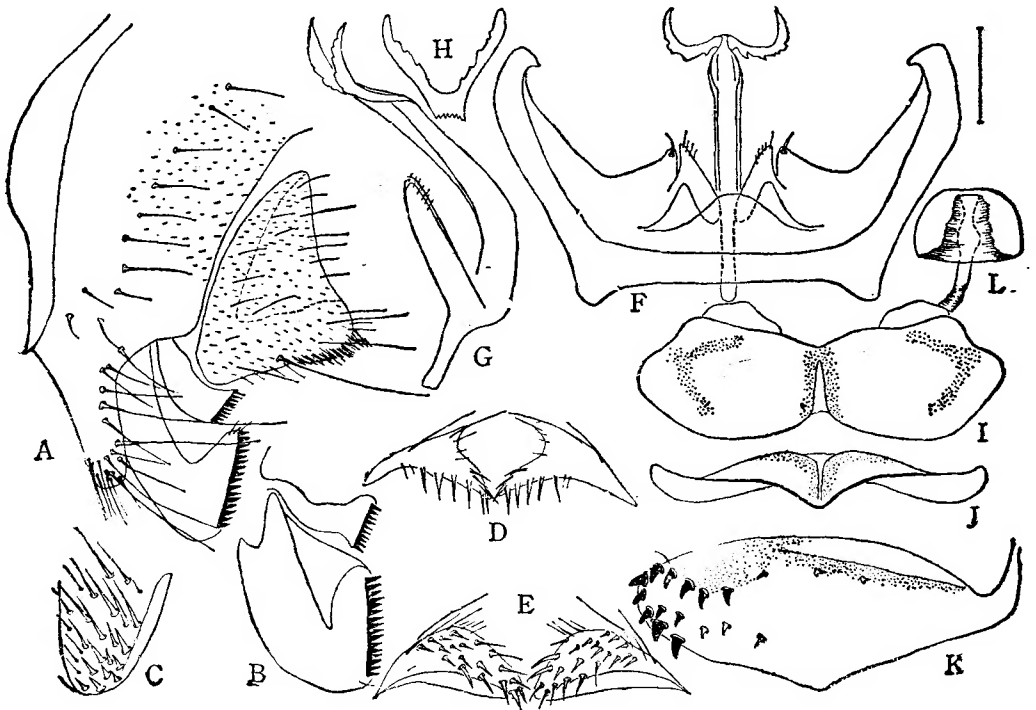


图 2 拟叉茎果蝇 *Drosophila (Drosophila) furcapienisoides* sp. nov.

A. 围阳体; B. 抱器(正面观); C. 抱器(侧面观); D. 肛板腹侧缘(腹侧面观); E. 肛板腹侧缘反折区域(正面观); F. 阳体(正面观); G. 阴茎与前阳基侧突(侧面观); H. 阴茎端(正面观); I. 第十腹板(背面观); J. 第十腹板(侧面观); K. 导卵器; L. 受精囊。(比例=0.1mm)

骨细短,棕色。下生殖板具一对亚中刺,下生殖板内骨宽,约为长的两倍。导卵器(图 2: K): 棕色,宽,端部圆,缘齿约 13—16,亚端缘齿凹形排列,盘齿约 5。受精囊(图 2: L) 棕色,半球形,内折部分具横皱,内伸的管中部膨大,呈花瓶状,外伸的管基部无环皱。

正模标本♂,云南省,德钦阿东山,1987. VII.8,梁醒财采。配模标本♀,同上。副模标本,2♀♀,同上。

鉴别特征: 该种似前一种,阳茎亦分叉,但叉内侧锯齿状。初抱器齿约 10; 次抱器齿列几乎占全长,约 16,腹面的鬃毛粗。肛板下缘齿长且密。第十腹板中央凹更深,仅上部相连。胸部背板中央具一棕色纵条。后横脉云状。

长叉茎果蝇 *Drosophila (Drosophila) longifurcapenis* 新种(图 3: A—H)

♂,体长约 3.0mm,翅长约 3.5mm。

头部: 复眼红色,被密集的微毛。触角第二节浅棕色,具 2 根长刚毛;第三节色更浅,触角芒背侧 5 分枝毛,腹侧 1 分枝毛,端叉小。下颚须黄色,端部及亚端外侧具 2 根长鬃,且具散生的小毛。单眼三角区及眶区棕黑色,额黄棕色,前方色更浅,具额毛。额为头宽的 1/2。口上片浅棕色。颜黄色。鼻瘤高,不达前缘。颊黄色,颊高为复眼最大直径的 1/4。喙浅黄色。后头棕色。 orb_2 近 orb_3 且在 orb_3 的外侧着生。 $orb_2/orb_1 = 0.37$, $orb_3/orb_1 = 0.75$, 鬃粗长,其余口缘鬃弱小, $or_2/or_1 = 0.28$ 。

胸部: 背板,小盾片及侧板均棕色。肩鬃 2,上面一根更长,ac 6 列。前背中鬃/后背中鬃=0.62,前背中鬃与后背中鬃间的距离为两前背中鬃间距离的 3/7。小盾片前鬃稍外伸,后鬃内伸且交叉。 $SI = 0.62$ 。足: 棕黄色,末端两节棕色。中足胫节具端鬃,前中

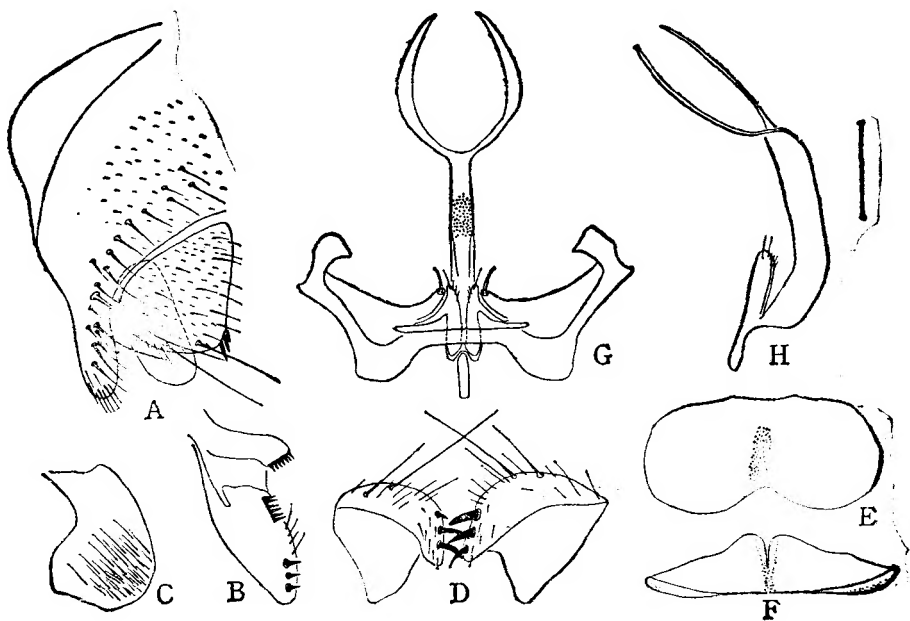


图 3 长叉茎果蝇 *Drosophila (Drosophila) longifurcapenis* sp. nov.

A. 围阳体; B. 抱器(背面观); C. 次抱器(腹面观); D. 肛板(腹侧面观); E. 第十腹板(背面观); F. 第十腹板(侧面观); G. 阳体(正面观); H. 阳茎和前阳基侧突(侧面观)。(比例=0.1mm)

后三对足的胫节均具亚端鬃。前足基跗节为以后二跗节长之和,中后足基跗节为以后三跗节长之和。翅:透明,后横脉非云状。 C_1 -鬃 2,几乎相等。 R_{4+5} 与M平行。 $C = 3.08$, $4C = 0.7$, $4V = 1.53$, $Ac = 3.0$, $5X = 1.44$, $C3F = 0.58$ 。平衡棒乳白色。

腹部:背板,腹板棕色,节间膜灰白色。

围阳体(图 3: A—F):生殖弓棕色,上部宽,具约 10 根长鬃;下部窄,呈指状,色稍浅,约 27 根长鬃,3 根特别粗长。肛板(图 3: D)比前两种小,下缘具两根长鬃特别长,端内侧反折部分具 3 粗黑齿,左右交叉。抱器二(图 3: B),初抱器窄长,端部具约 7 齿组成的齿列;次抱器稍小,齿列仅在上部,约 5—7 齿,下部具 4—5 散生的齿,内侧(图 3: C)向上着生的鬃毛细。第十腹板(图 3: E, F)棕色,中央凸出,两侧低。中间下部内凹。阳体(图 3: G, H):阳茎黄色,腹向弯曲。端二分叉,叉细长,内弯,侧缘稍锯齿状。阳基内骨短,棕色。前阳基侧突与阳茎相连,具约 4 感觉毛。下生殖板具一对亚中刺,下生殖板内骨宽,约为长的两倍。

正模标本♂,云南省,德钦阿东山, 1987. VII. 8, 梁醒财采。

鉴别特征:该种似前两种,阳茎端二分叉,但分叉更长,抱器小,齿少。肛板下侧缘的反折区域具 3 长黑齿,两侧交叉排列。第十腹板形状也不相同。棕色种。

致谢 承施立明先生, M.J. Toda 先生审阅,特此致谢。

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THREE NEW SPECIES OF *DROSOPHILA* (*DROSOPHILA*) *MELANDERI* SPECIES-GROUP IN HENGDUAN MOUNTAINS OF CHINA (DIPTERA: DROSOPHILIDAE)

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Abstract The *melanderi* species-group established by Wheeler (1949) include 4 species, *Drosophila ordinaria* Coquillett from southeastern Canada, Alaska and eastern USA; *D. cameraria* Hadiday from Europe; *D. makinoi* Okada from Japan and Korea, *D. neomakinoi* Gupta et Singh from India. The diagnoses of the *melanderi* species-group are: 1. secondary surstylus present; 2. anal plates ventrally with modified teeth and setulae; 3. hypandrial apodeme broader than long; 4. anterior parameres completely separated from hypandrium. This paper deals with three new species of *melanderi* group. All specimens are collected in same place—Deqen (Hengduan Mountains). This shows sympatry, implying the original area of *melanderi* group. All types are deposited in Kunming Institute of Zoology, Academia Sinica.

***Drosophila* (*Drosophila*) *furcapenis* sp. nov.** (fig. 1: A—H)

♂, Body ca. 3.0mm, wing ca. 3.5mm in length. Arista with 4 upper and 1 lower branches in addition to small terminal fork. Ocellar triangle yellowish, brown in ocelli. Frons dark yellow, slightly yellow anteriorly. Cheek ca. 1/5 as broad as the greatest diameter of eye. Mesonotum yellow. Posterior crossvein slightly cloud. Periphallallic organs (fig. 1: A—D, G, H): epandrium brown, slightly pubescent, broadened dorsally and projected ventrally, upper portion with ca. 10 bristles; lower portion with ca. 30 bristles. Anal plate brown, upper part narrow, lower part wide, pubescent and setigerous, with a few long bristles, with folding area from anterior margin to ventral margin, caudal margin concaved, ventrolateral margin (fig. 1: D) with short setae. Surstylus (fig. 1: B, C) two, brown, primary one small, with ca. 6 black teeth on truncated outer margin; secondary one large, with 1 straight row of ca. 13—14 teeth on upper to submiddle margin, with irregular long teeth on submiddle to distal margin, and recurved long setae on ventral view. 10th sternite (fig. 1: G, H) convexed at middle, slightly concaved at lower middle. Phallic organs (Fig. 1: E, F): aedeagus pale yellow, ventrad, forked at tip. The fork of aedeagus curved inward, transparent, with small spines. Anterior parameres connected with aedeagus basally, with ca. 5 sensilla. Posterior parameres absent. Apodeme short. Hypandrium with a pair of submedian spines. Hypandrial apodeme quadrate, about twice as broad as long. This species resembles *D. (D.) neomakinoi* Gupta et Singh 1981 in having mesonotum yellow, without stripe, but differs from it in the shapes of aedeagus, anal plate and surstylus, especially forked aedeagus apically, abdominal tergites with medially uninterrupted black band.

Holotype ♂, A-dong Mountain, Deqen County, Yunnan Province, July 8, 1987, X. C. Liang collected.

***Drosophila (Drosophila) furcapenisoides* sp. nov.** (fig. 2: A—L)

♂, ♀. Body *ca.* 3.5mm, wing *ca.* 3.5—4.0mm in length. Arista with 4—5 upper and 1 or 0 lower branches in addition to small terminal fork. Ocellar triangle dark yellow, brown in ocelli. Frons red-brown, fronto-orbital plates dark yellow. Cheek *ca.* $1/5$ — $1/4$ as broad as the greatest diameter of eye. Mesonotum yellow, with one brown stripe medially, ended before anterior margin, slightly broadened subapically. Terminal two tarsal joints brownish. Wing slightly cloud, veins brown, posterior crossvein cloud. Periphalllic organs (Fig. 2: A—E, I, J): the shapes of epandrium and anal plate are slightly similar to the foregoing species, but ventrolateral margin of anal plate (Fig. 2: D, E) with longer and denser setae. Surstylus (fig. 2: B) two, primary one with *ca.* 10 black teeth; secondary one with 1 straight row of *ca.* 16 teeth on almost entire margin and recurved stout setae (lower part short, upper part long) on ventral view 10th sternite (fig. 2: I, J) brown, slightly narrower than the foregoing species, with transparent small area anterolaterally; concaved and broken at middle, connected only at upper part. Phallic organs (fig. 2: F—H): aedeagus pale yellow, ventrad, the fork also curved inward, serrated at inside margin. Anterior paramere with *ca.* 5 sensilla. Posterior parameres absent. Apodeme short and thin. Egg-guide (fig. 2: K) brown, broad, rounded at tip, with *ca.* 13—16 marginal and *ca.* 5 discal black teeth, the teeth row concaved subapically. Spermathecae (fig. 2: L) brown, shaped somewhat depressed hemisphere, basal introvert transversely wrinkled, duct proximally expanded in introvert. This species is similar to the foregoing species in having forked aedeagus, but differs from it in the shape of aedeagus, anal plate, surstylus and 10th sternite.

Holotype ♂, A-dong Mountain, Deqen County, Yunnan Province, July 8, 1987, X. C. Liang collected. Allotype ♀, ditto. Paratypes 2 ♀ ♀, ditto.

***Drosophila (Drosophila) longifurcapenis* sp. nov.** (fig. 3: A—H)

♂. Body *ca.* 3.0mm, wing *ca.* 3.5mm in length. Arista with 5 upper and 1 lower branches. Ocellar triangle and fronto-orbital paltes black, frons brown, slightly brownish anteriorly. Cheek *ca.* $1/4$ as broad as the greatest diameter of eye. Mesonotum, scutellum and thoracic pleura brown. The terminal two tarsal joints brown. Wing hyaline. Periphalllic organs (fig. 3: A—F) is similar to the foregoing species, but differs from it in detail. Anal plate (fig. 3: D) smaller, with 3 stout black teeth ventrolaterally, cross each other bilaterally. Primary surstylus with *ca.* 7 teeth; secondary one smaller than the foregoing species, with a straight row of *ca.* 5—7 teeth on upper part and *ca.* 4—5 scattered teeth on lower part; recurved setae on ventral view thin and long. 10th sternite (fig. 3: E, F) brown, smaller than the foregoing species, convexed on middle part, slightly concaved at just middle. Phallic organs (fig. 3: G, H) aedeagus also forked, but the branches longer and thinner, slightly serrate on lateral margin. Apodeme brown and short. Anterior paramere with *ca.* 4 sensilla. Hypandrium with a pair of submedian spines. Hypandrial apodeme quadrate, about twice as broad as long.

Holotype ♂, A-dong Mountain, Deqen County, Yunnan Province, July 8, 1987, X. C. Liang collected.